

HARVARD
UNIVERSITY
LIBRARY
NOV 10 1943

A
501

The Museum

BOTANICAL MUSEUM LEAFLETS

HARVARD UNIVERSITY

CAMBRIDGE, MASSACHUSETTS, NOVEMBER 10, 1943

VOL. 11, No. 5

AFRICAN ORCHIDS. XIII

BY

V. S. SUMMERHAYES

(*Royal Botanic Gardens, Kew*)

THE LEAFLESS ANGRAECOID ORCHIDS

LEAFLESS MEMBERS of the large group of Monopodial Orchids are found in all the main tropical regions, for example, the genus *Taeniophyllum* Bl. in Indo-Malaya and the genera *Campylocentrum* Benth. and *Dendrophylax* Reichb.f. in tropical America. In Africa, including the Mascarene Islands in the broad sense, such orchids have generally been looked upon, probably correctly, as leafless representatives of the large group of Angraecoid orchids characteristic of that continent.

Until now all these leafless plants have either been placed in one genus or have been allocated to the various aggregate genera *Angraecum* Thouars, *Listrostachys* Reichb.f. and *Rhaphidorrhynchus* Finet according to the views of the authors dealing with them. The earliest distinct generic name for any leafless African monopodial orchid is *Gussonea* proposed by A. Richard in 1828 for *Angraecum aphyllum* Thouars (in *Mém. Soc. Hist. Nat. Paris* 4 (1828) 67). This name was afterwards adopted by Ridley (in *Journ. Linn. Soc. Lond. Bot.* 21 (1885) 391) who transferred several species from other genera and described some new ones. More recently Schlechter (in *Beih. Bot. Centralbl.* 36, Abt. 2 (1918) 89-94) also

accepted *Gussonea* in his general treatment of the Angraecoid orchids. Unfortunately *Gussonea* A. Rich. is a later homonym, the name having been used previously by Sprengel, under the alternative spelling *Gussonia*, for a genus of *Euphorbiaceae* now considered congeneric with *Sebastiana*. The next available name is *Microcoelia* proposed by Lindley in 1830 (Gen. & Sp. Orch. Pl. 60) for a Madagascar plant, and this is undoubtedly the correct name for the leafless Angraecoid orchids assuming that they are all congeneric.

Schlechter states in his introductory remarks (l.c. p. 72) that the leafless African species all possess a similar column structure and on that basis he puts them into a single genus, *Gussonea*. However, he points out elsewhere (p. 93) that the structure of his *Angraecum macrorrhynchium* (*Gussonea macrorrhynchia* Schltr.) is so different from that of other species that it may prove to belong to a separate genus. He divides *Gussonea* into two sections, namely, section *Eu-gussonea* with elongated climbing stems, and section *Taeniophylloides* with a very short stem, the whole plant strongly resembling members of the genus *Taeniophyllum*. He gives no correlated floral differences so presumably he had detected none of any significance.

Finet (in Mém. Soc. Bot. France 9 (1907) 34, 35, 47, 50), on the other hand, placed the species in several different genera, but his genera are many of them so artificial that his separation of the leafless species is little evidence of their real distinctiveness. It has, however, been suggested, for example, by Braid (in Bull. Misc. Inform. Kew (1926) 324) and the present writer (in Bull. Misc. Inform. Kew (1936) 232) that the striking common feature of leaflessness may have been given too much weight and that perhaps several genera are represented among the various species described. If this be true, do some of

the species belong to otherwise leafy genera or should they form distinct leafless genera?

In view of this doubt as to the generic conformity (or otherwise) of the various species and the fact that many new combinations will in any case be necessary under the correct generic name *Microcoelia*, I have re-investigated the genus. Unfortunately owing to war conditions I have been unable to examine the type-specimens of several of the species and accurate placing of these will have to await a more favorable opportunity. It has seemed worth while, however, to place on record such decisions as could profitably be made from the material and information available.

The final result of this examination, put shortly, is that the species of *Microcoelia* form, on the whole, a natural genus, possessing many features in common apart from the leafless habit, but that several species have to be transferred to other genera. In addition I have discovered some remarkable forms which can only be satisfactorily treated as new genera.

The species most obviously differing from the others are those with the elongated climbing stems. These, of course, include the type of *Gussonea* (*G. aphylla* (Thouars) A. Rich.) and therefore form Schlechter's section *Eugussonea*. When, however, the name *Microcoelia* Lindl. is adopted for the genus, the type species is *M. exilis* Lindl., and this has a short stem. On examination of the long-stemmed forms I cannot see how they differ from the genus *Solenangis* Schltr. except in the leafless habit, so I have transferred them to this genus. *Angraecum macrorrhynchium* Schltr., mentioned already, is an aberrant form, for which I am creating a new genus described below.

Excluding the above, as well as some even more remarkable plants described below for the first time, the

genus *Microcoelia* contains some twenty-five or so species, but it is possible that some of these may prove to be conspecific. It is also practically certain that many new species yet await discovery, since the leafless habit renders the plants inconspicuous except when in flower, quite apart from the fact that some of the species are extremely small.

The type specimens of the new species are in the Kew Herbarium unless otherwise stated.

MICROCOELIA Lindl.

Microcoelia *Lindley* Gen. & Sp. Orch. Pl. (1830) 60—Summerhayes in Hutchinson & Dalziel Fl. West Trop. Afr. 2 (1936) 403, 454.

Plantae epiphyticae, aphyllae. *Caulis* brevissimus, usque ad 3 cm. longus, radices flexuosas simplices vel ramosas saepius laeves emittens, apice cataphyllis scariosis minutis praeditus. *Inflorescentiae* ex axillis cataphyllorum exortae, singulae vel plures, racemosae, pauciusque multiflorae, breves vel usque ad 20 cm. longae. *Flores* alternati, parvi vel parvuli, albi, rosei vel aurantiaci, breviter vel longiuscule pedicellati; bracteae saepius minimae, basi vaginantes. *Sepala* saepius \pm conniventia, lanceolata vel ovata, acuta vel obtusa, lateralia obliqua quam intermedium saepe majora, saepius basi antice ampliata. *Petala* sepalis \pm similia, sed saepe minora vel angustiora, interdum obovata vel oblonga. *Labellum* simplex vel basi obscure trilobatum, saepe pro rata parvum vel minimum, oblongum, ovatum, lanceolatum vel orbiculare, ecallosum; calcar breve vel elongatum, globosum, conicum vel cylindricum, interdum apicem versus leviter vel modice inflatum, ore angustum vel latiusculum. *Columna* brevis vel antice brevissima, interdum \pm recurvata; androclinium reclinatum vel adscendens; anthera \pm hemisphaerica, antice breviter vel saepius longe producta;

pollinia duo, sphaeroidia vel \pm pyriformia, stipite uno sed raro superne diviso lineari vel ligulato apice saepe dilatato, viscidio uno; stigma excavatum; rostellum modice vel valde productum, saepius decurvatum et columnae \pm adpressum, interdum parte distali incurvatum vel porrectum, viscidio amoto \pm profunde bipartitum.

Species typica:—*M. exilis* Lindl.

Characteristic features are the short stem, simple racemose inflorescences with flowers arising singly, the almost entire lip, the short column, in which the androclinium is rarely horizontal being usually markedly sloping upwards towards the back and sometimes very much so, the common stipes and viscidium and the deeply-cleft elongated rostellum. This latter is usually adpressed to the column in the lower part but may be curved upwards in the distal part or rarely is wholly divergent. After removal of the viscidium the two lobes are clearly evident.

Most of the characters, such as flower size, shape of perianth members, size of lip, length and shape of spur, nature of column, shape of pollinarium and rostellum, exhibit more or less continuous gradations from one extreme to the other and thus indicate the entity of the genus. It is, however, possible to separate three groups or sections in each of which the floral characters are combined to give a more or less recognisable facies. I have therefore arranged the species in these sections, which are shortly characterised, but as I have not seen all the species some transferences may be necessary later.

Section I. EU-MICROCOELIA Summerhayes.

Flores parvi vel minimi; labellum parvum vel mediocre; columna dorso brevis, clinandrio dorso tantum paulo adscendente; anthera antice vix producta; pollinii stipes brevis, viscidio pro rata magno \pm quadrato ovato vel orbiculari.

Species typica sectionis:—*M. exilis* Lindl.

The species of this section are characterised by the small or even minute flowers and the column structure. The androclinium is almost horizontal or at most gently sloping upward from the front while the rostellum-lobes are comparatively short.

1. **Microcoelia conica** (*Schlechter*) *Summerhayes*
comb. nov.

Angraecum conicum Schlechter in Engler Bot. Jahrb. 38 (1906) 160.

Gussonea conica Schlechter in Beih. Bot. Centralbl. 36, Abt. 2 (1918) 91, et in Fedde Repert. Spec. Nov. Beih. 68 (1932) t. 96, no. 382.

MOZAMBIQUE: Near Beira, April 1885, *Schlechter*.

I have not seen this species but from the description and illustration it should fall into this section. Schlechter's comparison with *Angraecum cyclochilum* Schltr., which is a species with an elongated stem, raises the possibility that the present species is similar in that respect, but unfortunately the description provides no definite information on this point. In his revision Schlechter places it among the short-stemmed forms (see above reference).

2. **Microcoelia exilis** *Lindley* Gen. & Sp. Orch. Pl. (1830) 61.

Angraecum Chiloschistae Reichenbach filius in Linnæa 20 (1847) 678, et in Walpers Ann. 1 (1849) 791—Bolus Ic. Orch. Austr.-Afric. 1 (1893) t. 6, et in Journ. Linn. Soc. Lond. Bot. 25 (1889) 186—Durand & Schinz Consp. Fl. Afr. 5 (1892) 40—Rolfe in Dyer Fl. Cap. 5, ii (1912) 74.

Gussonea exilis Ridley in Journ. Linn. Soc. Lond. Bot. 21 (1885) 493, et in Journ. Bot. 24 (1886) 292—

Schlechter in Beih. Bot. Centralbl. 33, Abt. 2 (1915) 425, et l.c. 36, Abt. 2 (1918) 92.

Mystacidium exile Durand & Schinz Consp. Fl. Afr. 5 (1892) 52—Palacky Cat. Pl. Madag. (1906) 11.

Angraecum aphyllum Kraenzlin in Engler Pflanzenw. Ost.-Afr. C (1895) 157, non Thouars.

Rhaphidorrhynchus Chiloschistae Finet in Mém. Soc. Bot. France 9 (1907) 35.

Gussonea Chiloschistae Schlechter in Beih. Bot. Centralbl. 36, Abt. 2 (1918) 91.

KENYA COLONY: Muka, June 1902, *Kassner 941*; Rabai Hills, Kayobomu, April 1886, *Taylor*; Tsimba ("Jomvu"), June 1886, *Taylor*.

TANGANYIKA TERRITORY: Usambara, Kwa Mshuza, Aug. 1893, *Holst 8889a*; Bombuera, Feb. 1893, *Holst 2210*; Shinyanga, Ndama River, June 1931, *Burt 3498*; Handeni District, between Zindeni and Mazima, Sept. 1933, *Burt 4948*; Kilosa, June 1926, *Burt 125*.

NORTHERN RHODESIA: Kafue River, Mwengwa, N. of Namwala, *Macauley 1055*; Zambesi River, Victoria Falls, N. bank, April 1932, *Thompson 1350*.

NYASALAND: [about 20 miles S. of Blantyre] Aug.-Sept. 1861, *Meller*; Shire River valley, Dec. 1865, *Waller*; Shiri Beesi, Shire River, April 1859, *Kirk*; near Blantyre, *Last*.

MOZAMBIQUE: Cafunipe (or Cafumpe), Feb. 1924, *Honey 801*; River Zonoe, in Manica, April 1907, *Johnson 258*.

NATAL: Port Natal, *Gueinzius 263*; Tongaat, *Saunders* (Herb. Bolus 6219); Zululand, White Umfolozoi River, Sept. 1937, *Harris*; near Sea-cow Lake, March 1867, *Sanderson 1007*.

MADAGASCAR: no locality, *Forbes*, s.n. (TYPE); 28.

Easily distinguished by the extremely small flowers and almost globular spur. I can see no differences in specimens throughout the above extensive range and can find no support for Schlechter's separation of the Madagascar species from that of the mainland nor for his suggestion that several allied species may occur on the mainland. During his later researches Schlechter seems to have adopted the view that orchids must, *ipso facto*, have limited distributions and interpreted his species accordingly.

All my investigations tend to show that many African orchids have even wider distributions than those credited to them by the earlier workers such as Reichenbach and Rolfe.

3. **Microcoelia Guyoniana** (*Reichenbach filius*) *Summerhayes comb. nov.*

Angraecum Guyonianum Reichenbach filius in *Linnaea* 22 (1849) 865, et in *Walpers Ann.* 3 (1852) 572—*Schweinfurth Beitr. Fl. Aethiop.* (1867) 198, 292—*Martelli Florul. Bogos.* (1886) 81—*Rolfe in Dyer Fl. Trop. Afr.* 7 (1897) 148.

Saccolabium radicosum A. Richard *Tent. Fl. Abyss.* 2 (1851) 285.

Angraecum globulosum Hochstetter ex A. Richard l.c., *in synonym.*

Microcoelia ? *Taeniophyllum* Hochstetter ex A. Richard l.c., *in synonym.*

Aëranthus Guyonianus Reichenbach filius in *Flora* 48 (1865) 190, et in *Otia Bot. Hamburg.* (1881) 78.

Gussonea globulosa Ridley in *Journ. Linn. Soc. Lond. Bot.* 21 (1885) 391, *in obs.*—*Schlechter in Beih. Bot. Centralbl.* 36, Abt. 2 (1918) 93.

Mystacidium globulosum Durand & Schinz *Consp. Fl. Afr.* 5 (1892) 53.

Mystacidium radicosum Durand & Schinz l.c. 54.

ERITREA: Between Keren and Massawa, near Maldi, Aug. 1870, *Beccari* (not seen).

ABYSSINIA: Below Jeladjeranne, near Tacazze River, May 1840, *Schimper 1565* (TYPE); Amba Sea, June 1856, *Schimper 560*.

SUDAN: Sennar Province, Fazogli, near Fadoga, April 1848, *Cienkowski* (not seen).

OUBANGUI-CHARI: River Baedou, 25 km. S. of Ippy, May 1927, *Tisserant 2171*.

UGANDA: Toro District, May 1939, *Chandler 2798A*.

KENYA COLONY: Maruessa, between Duruma and Teita, Jan. 1877, *Hildebrandt 2374*; Nairobi, Jan. 1932, *Napier* (Coryndon Mus. Herb.

1532); Nairobi, Aug. 1933, *Napier* (Coryndon Mus. Herb. 5213); Aberdare Mts., Kinangop district, December 1930, *Napier* (Coryndon Mus. Herb. 724).

ANGOLA: Golungo Alto, near River Cuango and at Sobato de Bumba near River Casabella, May 1856, *Welwitsch* 653; Pungo Andongo, April 1875, *Soyaux* 228.

NORTHERN RHODESIA: Mwinilunga District, S. of Matonchi Farm, Feb. 1938, *Paterson in Milne-Redhead* 4651.

BELGIAN CONGO: Katanga, Elisabethville district, Oct. 1923, *Von Hirschberg* 12.

Here again is a species with a wide distribution in Tropical Africa. The species is closely allied to *M. Smithii* (Rolfe) Summerh. and to *M. Stolzii* (Schltr.) Summerh., both of which may eventually prove to be local races of *M. Guyoniana*. The species is characterised by the rather small flowers, the relatively large obovate or oblong lip and the more or less conical-cylindrical spur often slightly recurved at the apex.

I am adopting the epithet *Guyoniana* as in my opinion *Angraecum globulosum* Hochst. was not validly published by the distribution of Schimper's exsiccatae. It is laid down in the International Rules of Nomenclature (Art. 37) that names accompanying exsiccatae are only validly published if accompanied also by a description. The phrase in brackets on Schimper's label "Folia minima ad apicem caulis in globulum conferta" does not appear to me to be a formal description provided by Hochstetter but merely an extract from Schimper's field notes. The acceptance of such "descriptions" as validating might make it necessary to take up any new name accompanying distributed dried specimens if the collector's field notes reproduced on the label happened to contain some descriptive phrases. In addition in the present example the phrase does not distinguish the species from any other *Microcoelia*, the character described being a generic one.

4. **Microcoelia Hirschbergii** *Summerhayes sp. nov.*
a *M. Guyoniana* (Reichb.f.) Summerh. inflorescentiis valde brevioribus, labelli calcar lamina duplo longiore ore angusto superne leviter inflato, pollinii viscidio quadrato pro rata magno differt.

Planta parva, epiphytica; caulis brevissimus, vix 1 cm. longus, radices numerosas flexuosas laeves 2-3 mm. diametro emittens. *Inflorescentiae* fasciculatae, usque ad 1.5 cm. longae, erectae, basi vaginis scariosis acutis praeditae, superne densiuscule usque ad 15-florae; pedunculus brevis; rhachis angulata, gracilis; bracteae lanceolatae, acuminatae, 1-2 mm. longae. *Flores* sub-erecti vel erecto-patentes, albi labello basi maculis duabus brunneis instructo; pedicellus cum ovario 8-9 mm. longus, tenuis. *Sepala* oblonga vel elliptico-oblonga, lateralibus obliquis, apice apiculata, 3.5-3.7 mm. longa, circiter 1.25 mm. lata, subtrinervia. *Petala* oblonga, apice acuta, 3 mm. longa, 1 mm. lata, uninervia. *Labellum* e basi angusta late ellipticum, acutum, integrum, in toto 3 mm. longum, antice 1.8 mm. latum, plurinervium; calcar \pm cylindricum, ore leviter angustatum, superne leviter inflatum, apice obtusum, circiter 5-5.5 mm. longum. *Columna* brevissima, truncata, androclinio reclinato leviter excavato; anthera fere hemisphaerica, antice truncata vel brevissime producta; pollinia ellipsoidea, stipite quam pollinia breviora lineari-cylindrica, viscidio \pm quadrato pro rata magno; rostellum porrectum, breve, subacutum; ovarium circiter 3 mm. longum.

BELGIAN CONGO: Katanga, near Elisabethville, 4500-5000 ft. alt., on trees away from water, Sept. 1923, *Von Hirschberg 26* (TYPE in Nat. Herb., Pretoria).

A striking little species with a rather long cylindrical spur slightly narrower towards the mouth. The rostellum and also the stipes of the pollinium are exceptionally short the viscidium is relatively large being as broad

as the stipes is long, while the pollinia are larger than either.

5. **Microcoelia microglossa** *Summerhayes* in Hutchinson and Dalziel Fl. West Trop. Afr. 2 (1936) 454, et in Bull. Misc. Inform. Kew (1936) 231.

SOUTHERN NIGERIA: Oban District, *Talbot*.

Very similar superficially to *M. caespitosa* (Rolfe) Summerh. in Section II but the column is very short with the androclinium only gently sloping upwards while the rostellum and its associated structures (stipes and viscidium) are also short and broad. Another striking feature is the exceptionally long spur (nearly 2 cm. long) which is suddenly widened near the apex and then tapers to the apex itself.

6. **Microcoelia Perrieri** (*Finet*) *Summerhayes* comb. nov.

Rhaphidorrhynchus Perrieri Finet in Lecomte Not. Syst. 1 (1909) 89.

Angraecum Perrieri Schlechter in Ann. Mus. Col. Marseille, sér. iii, 1 (1913) 198.

Gussonea Perrieri Schlechter in Beih. Bot. Centralbl. 33, Abt. 2 (1915) 425, et l.c. 36, Abt. 2 (1918) 94, et in Fedde Repert. Spec. Nov. Beih. 33 (1925) 378.

MADAGASCAR: Ambodiroko, near Mevatanana, Oct. 1894, *Perrier de la Bathie* 58 (not seen) (TYPE); Sambirano, valley of the Sambirano, July 1909, *Perrier* 1841; basin of the lower Mangoky, below Berowha, Sept. 1919, *Perrier* 12865.

Well characterised by the long slender rhachis and hair-like pedicels and the almost cylindrical spur about three times as long as the lip lamina and slightly constricted about one-third below the apex. The rostellum and stipes are short and the general structure strongly resembles that of *M. Hirschbergii* Summerhayes described above. *M. Perrieri*, however, has much longer

inflorescences, the perianth members more unequal especially the very oblique lateral sepals, the spur longer and constricted nearer the apex, and a relatively smaller viscidium.

7. **Microcoelia physophora** (*Reichenbach filius*) *Summerhayes comb. nov.*

Angraecum physophorum Reichenbach filius Otia Bot. Hamburg. (1881) 77.

Gussonea physophora Ridley in Journ. Linn. Soc. Bot. 21 (1885) 492—Schlechter in Beih. Bot. Centralbl. 33, Abt. 2 (1915) 425, et l.c. 36, Abt. 2 (1918) 94, et in Fedde Repert. Spec. Nov. Beih. 33 (1925) 378.

ZANZIBAR: Chwaka, near shore, Oct. 1932, *Vaughan 2016*; no locality, *Vaughan 1747*.

MADAGASCAR: Nosi-Komba Island, Dec. 1879, *Hildebrandt 3255* (TYPE); Tampaketso, west Madagascar, Sept. 1904, *Perrier de la Bathie 1771* (not seen); Marvorary, Boina, July 1922, *Perrier 14805* (not seen).

This species, which has not previously been recorded from Africa proper, can be recognised by the rather flattened roots, the long spur thickened at the apex and the narrow ligulate erect and concave lip lamina. The mouth of the spur is much narrowed by the infolding of the edges on either side. The androclinium slopes upwards somewhat but the porrect rostellum is comparatively short. The two pyriform pollinia are attached, by a stipes of moderate length and somewhat widened above, to a large heart-shaped viscidium.

8. **Microcoelia Smithii** (*Rolfe*) *Summerhayes comb. nov.*

Angraecum Smithii Rolfe in Bull. Misc. Inform. Kew (1895) 37, et in Dyer Fl. Trop. Afr. 7 (1897) 149.

Gussonea Smithii Schlechter in Beih. Bot. Centralbl. 36, Abt. 2 (1918) 94.

KENYA COLONY: Giryama and Tsimba Mts., 1887, *Taylor*.

TANGANYIKA TERRITORY: Between the sea and Mt. Kilimanjaro,

Smith; cult. Royal Botanic Gardens, Kew, Jan. 1895 (TYPE); Usambara, Amani, Jan. 1910 *Kraenzlin* (Herb. Amani 29957); Amani, Dec. 1928, *Greenway* 1065.

Evidently allied to *M. Guyoniana* (Reichb. f.) Summerh. of which it may prove to be a local race or variety. It may be distinguished by its smaller size, more slender inflorescences, smaller flowers and narrow perianth members including the lip. In general floral structure there is close agreement between the two species.

9. **Microcoelia Stolzii** (*Schlechter*) *Summerhayes* comb. nov.

Gussonea Stolzii Schlechter in Engler Bot. Jahrb. 53 (1915) 596, et in Fedde Repert. Spec. Nov. Beih. 68 (1932) t. 98, no. 389.

TANGANYIKA TERRITORY: Kyimbila District, Madehani, Dec. 1913, *Stolz* 2350 (TYPE); Njombe, Dec. 1931, *Lynes Fj* 26; Uluguru Mts., N.W. side, Dec. 1932, *Schlieben* 3079.

This, like *M. Smithii* (Rolfe) Summerh., is a close ally of *M. Guyoniana* (Reichb. f.) Summerh., which they appear to replace in Tanganyika Territory. *M. Stolzii* is characterised by the spur which is only about half the length of the narrow acute lip and is markedly incurved. There are, however, specimens in the Kew Herbarium from Kenya Colony in which a relatively short incurved spur is associated with the broader lip and perianth segments of typical *M. Guyoniana*. There is some evidence that these three species should more correctly be treated as variants of one species with which, perhaps, *M. conica* (Schltr.) Summerh. should also be associated.

Section II. BRACHYGLOSSA Summerhayes

Flores parvi vel mediocres; labellum pro rata breve sed saepius latum, calcaris labello usque ad triplo longiore; columna antice brevis, dorso saepe valde altior, clinandrium dorso saepius valde adscendente; anthera antice sae-

pius valde producta; pollinii stipes mediocris vel longus interdum superne bifidus, viscidio ovato, oblongo vel lanceolato; rostellum longe productum, basi saepius decurvatum, parte distali interdum incurvatim porrectum.

Species typica sectionis:—*M.caespitosa* (Rolfe) Summerh.

The species of this section may be distinguished from those of Section I by their usually larger flowers and longer spur. The lamina of the lip is relatively short, though sometimes quite broad, and may be markedly concave. The column is much higher at the back than in front, the androclinium consequently rising steeply from its front margin. The rostellum is usually quite long and either produced downwards for its whole length or the lower part more or less adpressed to the column and the distal part curving upwards and forwards. In agreement with this the anther is often extended in front to form a long point covering the pollinarium. The stipes is usually long and slender while the viscidium is more elongated in shape than in sect. *Eu-microcoelia*. In several species the stipes is divided in the upper part, one pollinium being attached to each branch.

10. *Microcoelia aurantiaca* (Schlechter) Summerhayes
comb. nov.

Gussonea aurantiaca Schlechter in Fedde Repert. Spec. Nov. 15 (1918) 333, et in l.c. Beih. 68 (1932) t. 96, no. 381.

MADAGASCAR: St. Marie de Madagascar Island, or mainland nearby *Laggiara* (not seen).

On account of the column characters, particularly the sloping androclinium, the forked stipes to the pollinia and the orange color of the flowers this species seems properly placed in this section. It differs from *M.Elliotii* (Finet) Summerh. in the narrower lip, the shorter spur and the

differently shaped viscidium, and from *M. dolichorrhiza* (Schltr.) Summerh. by the absence of the two plate-like calli in front of the spur mouth, the narrower, tapering spur and the widened upper ends of the branches of the stipes.

11. *Microcoelia Bieleri* (*De Wildeman*) *Summerhayes* comb. nov.

Angraecum Bieleri De Wildeman in Bull. Jard. Bot. Brux. 5 (1916) 182.

Gussonea Bieleri Schlechter in Beih. Bot. Centralbl. 36, Abt. 2 (1918) 91.

BELGIAN CONGO: Haut Lopori, 1904, *Bieler*; Eala, 1905, *M. Laurent* 1780.

I have not seen this species which is evidently allied to *M. caespitosa* (Rolfe) Summerh. but has larger flowers (the dorsal sepal is nearly twice as long). Unfortunately the floral details are not described sufficiently to place the species more accurately.

12. *Microcoelia caespitosa* (*Rolfe*) *Summerhayes* in Hutchinson & Dalziel Fl. West Trop. Afr. 2 (1936) 454.

Angraecum caespitosum Rolfe in Dyer Fl. Trop. Afr. 7 (1897) 150—Rendle Cat. Talb. Nig. Pl. (1913) 146—A. Chevalier Explor. Bot. Afr. Occ. Franç. 1 (1920) 617.

Angraecum crinale De Wildeman Not. Pl. Utiles Congo (1904) 320.

Angraecum Andersonii Rolfe in Bull. Misc. Inform. Kew (1912) 134.

Gussonea caespitosa Schlechter in Beih. Bot. Centralbl. 36, Abt. 2 (1918) 91.

Gussonea crinalis Schlechter l.c.

Gussonea micropetala Schlechter l.c. 93, *pro parte*.

SIERRA LEONE: Jala, Sept. 1914, *Bunting* 77; Northern Province,

Roruks, July 1936, *Deighton 3250*; Njala, June 1927, *Deighton 717*.

LIBERIA. Gbanga, Sept., *Linder 603*.

IVORY COAST: Between Zago and Gaouloubré, May 1907, *Chevalier 16340*. (Also several other gatherings not seen by me).

GOLD COAST: No locality, *Anderson*, cult. Hort. Kew. Dec. 1911; Western Province, Tarquah, Sept.-Dec. 1912, *Miles*; Kumasi, *Cox 62*, cult. Hort. Kew. May 1937.

SOUTHERN NIGERIA: Oban District, 1911, *Talbot 891*.

CAMEROONS: Efulen, Aug. 1895, *Bates 353* (TYPE); no locality, *Bates*.

BELGIAN CONGO: Kiri, Lake Léopold II, Nov. 1903, *Laurent*; Injolo, 1906, *M. Laurent 1779, 1782*; Eala, 1905, *Pynaert 433*; same locality and date, *M. Laurent 1789*.

Evidently widely spread in western Tropical Africa. *M. micropetala* (Schltr.) Summerh. may prove to be conspecific, but the type specimen, although not well preserved, seems to have a shorter erect rostellum.

M. caespitosa may be recognised by the short inflorescences, long spur wider at both apex and base and the remarkable rostellum. This is deflexed at first and adpressed (perhaps adnate) to the column but the distal half projects forwards and upwards for an equal distance so as to be level with the anther. This upright part bears the long oblanceolate viscidium, the stipes being V-shaped to fit the rostellum and slightly widened above where the globose pollinia are attached.

13. *Microcoelia deflexicalcarata* (*De Wildeman*) *Summerhayes comb. nov.*

Angraecum deflexicalcaratum De Wildeman in Bull. Jard. Bot. Brux. 5 (1916) 185.

Gussonea deflexicalcarata Schlechter in Beih. Bot. Centralbl. 36, Abt. 2 (1918) 90.

BELGIAN CONGO: Injolo & Eala, 1905, *M. Laurent 1776* (not seen).

Schlechter places this among the long-stemmed species but the description states "ramis brevibus usque 2 cm. longis," while in the other features I can detect no resemblance to the species of *Eu-gussonea*. The species ap-

pears to be allied to *M. caespitosa* (Rolfe) Summerh. but the perianth members are larger; the column is inadequately described.

14. **Microcoelia dolichorrhiza** (*Schlechter*) *Summerhayes comb. nov.*

Angraecum dolichorrhizum Schlechter in Ann. Mus. Col. Marseille, sér. iii, 1 (1913) 192, t. XX, figs. 8–16.
Gussonea dolichorrhiza Schlechter in Beih. Bot. Centralbl. 33, Abt. 2 (1915) 425, et l.c. 36, Abt. 2 (1918) 92, et in Fedde Repert. Spec. Nov. Beih. 33 (1925) 376, et l.c. Beih. 68 (1932) t. 97, no. 385.

MADAGASCAR: West Madagascar, Manongarivo, Ambongo, *Perrier de la Bathie* 1019 (12) (not seen).

One of the species in which the stipes is divided in the upper part. Its most striking feature is the presence of two plate-like transverse lamellae one on each side at the mouth of the spur.

15. **Microcoelia Elliotii** (*Finet*) *Summerhayes comb. nov.*

Listrostachys Elliotii Finet in Mém. Soc. Bot. France 9 (1907) 50, t. X, figs. 1–13.

Gussonea Elliotii Schlechter in Beih. Bot. Centralbl. 33, Abt. 2 (1915) 425, et l.c. 36, Abt. 2 (1918) 92.

MADAGASCAR: Fort Dauphin, June, *Scott-Elliott* 2653.

Another species with a divided stipes, which, however, in the specimen of the Type Collection at Kew, is only divided in the upper half and not almost to the base as shown in Finet's illustration. The long spur, incurved at the base and of uniform thickness throughout its entire length, is also characteristic.

16. **Microcoelia Gilpinae** (*Reichenbach filius & S. Moore*) *Summerhayes comb. nov.*

Angraecum Gilpinae Reichenbach filius & S. Moore in Journ. Linn. Soc. Lond. Bot. 16 (1877) 206.

Gussonea Gilpinae Ridley in Journ. Linn. Soc. Lond. Bot. 21 (1885) 491—Schlechter in Beih. Bot. Centralbl. 33, Abt. 2 (1915) 425, et l.c. 34, Abt. 2 (1916) 333, et l.c. 36, Abt. 2 (1918) 92, et in Fedde Repert. Spec. Nov. Beih. 33 (1925) 376.

Rhaphidorrhynchus Gilpinae Finet in Mém. Soc. Bot. France 9 (1907) 34, t. VI, figs. 33–37.

MADAGASCAR: Antananarivo, March 1877, *Gilpin* (TYPE); north Madagascar, *Baron 6131*; Ambodiary, *Warpur*; Betsileoland, *Baron 199*; central Madagascar, *Baron 1082*; s.n.; Ankafana, *Deans Cowan*; no locality, *Methuen*; *Deans Cowan*; Imerina, *Le Myre de Vilers*; *Campenon* (both not seen); Maningony Forest, Sept. 1912, *Perrier de la Bathie 11379*; Manaroa River, *Perrier 11486* (both not seen).

This species may be recognised from all the other species which I have seen, with the exception of *M. melanantha* (Schltr.) Summerhayes, by the marked almost naked peduncle which is usually as long as, if not longer than, the flower-bearing part of the inflorescence. The column is also remarkable, the rostellum curving up in front so as to form in continuity with the sloping androclinium a sickle-shaped apex to the column along which lies the stipes of the pollinia. The lip is very concave and almost impossible to flatten out while the spur is incurved for a short distance at its base; it is shorter and thicker than in *M. Ellioti* (Finet) Summerh.

17. ***Microcoelia konduensis*** (*De Wildeman*) *Summerhayes comb. nov.*

Angraecum konduense De Wildeman Not. Pl. Utiles Congo (1904) 321.

Gussonea konduensis Schlechter in Beih. Bot. Centralbl. 36, Abt. 2 (1918) 93.

BELGIAN CONGO: Kondue, Nov. 1903, *E. & M. Laurent* (not seen).

Described from such poorly preserved material that no

details are available of many of the floral parts. It appears to be a relative of *M. caespitosa* (Rolfe) Summerh. but may be more correctly placed in Section III.

18. **Microcoelia macrantha** (*H. Perrier*) *Summerhayes comb. nov.*

Gussonea macrantha H. Perrier in Humbert Not. Syst. 7 (1938) 29.

MADAGASCAR: Eastern region, near confluence of Rivers Onive and Mangoro, Feb. 1925, *Perrier 17028* (1) (not seen).

Easily distinguished by the relatively large flowers, the perianth lobes being about 8 mm. long.

19. **Microcoelia melinantha** (*Schlechter*) *Summerhayes comb. nov.*

Gussonea melinantha Schlechter in Fedde Repert. Spec. Nov. Beih. 33 (1925) 377.

MADAGASCAR: Central Madagascar, Mt. Zaranana, Jan. 1923, *Perrier de la Bathie 15693* (not seen).

Said to be near *M. Gilpiniae* (Reichb. f. & S. Moore) Summerh., with which it has the orange flowers and distinct peduncle in common, but the flowers appear from the description to be distinctly larger while the mouth of the spur is extremely narrow.

20. **Microcoelia micropetala** (*Schlechter*) *Summerhayes comb. nov.*

Angraecum micropetalum Schlechter in Engler Bot. Jahrb. 38 (1905) 23, fig. 6.

Gussonea micropetala Schlechter in Beih. Bot. Centralbl. 36, Abt. 2 (1918) 93.

FRENCH CAMEROONS: Dja River, Sept. 1899, *Schlechter 12779*; Oct. 1899, *Schlechter 12876*; Eko-Keyoke, in Bakossi County [N.E. of Mundame], Jan. 1900, *Schlechter 12892* (SYN-TYPES).

Very similar to *M. caespitosa* (Rolfe) Summerh., particularly as regards the perianth members and the lip, but

apparently differing in column structure. From Schlechter's drawings and my dissections of the type specimen, the rostellum does not possess the long decurved and adpressed basal portion but projects upwards from the front apex of the column; in conformity the viscidium is much shorter and there is no bend in the stipes.

Section III. DICRANOTAENIA (Finet) Summerhayes

Dicranotaenia Finet in Mém. Soc. Bot. France 9 (1907) 47, pro genere.

Flores mediocres; labellum pro rata magnum, \pm unguiculatum, ovatum, ellipticum, suborbiculare vel subflabellatum, apice \pm emarginatum apiculo interjecto, calcari longo incurvato; columna dorso alta superne \pm recurvata, antice brevissima facie antica fere horizontali, clinandrio dorso valde adscendente; anthera antice longe producta; pollinii stipes longus vel perlongus, interdum superne bifidus, viscidio parvo vel minuto, saepius angusto; rostellum decurvatum productum, columnae fere omnino adnatum, apice liberum horizontaliter porrectum distincte bilobum.

Species typica sectionis:—*M. dahomeensis* (Finet) Summerh.

A small but very natural group characterised by the large lip lamina distinctly narrowed at the base, the long more or less incurved spur and the peculiar column structure. The column widens rapidly upwards from the base so that the back is nearly vertical or sloping steeply upwards while the lower part of the front is nearly horizontal and much shorter. The androclinium is nearly vertical and, with most of the rostellum, is covered by the much elongated anther. The rostellum, which extends down the front of the column, is adnate for most of its length but projects forwards at the apex to form two acute or rounded lobes in the mouth of the spur between which

rests the small and often narrow viscidium. As in some species of Section II the apex of the stipes (or of the two branches of the stipes) is not only widened but curved back to form a small flat or concave platform in the centre of which the pollinia rest.

21. *Microcoelia dahomeensis* (*Finet*) *Summerhayes* in *Hutchinson & Dalziel Fl. West Trop. Afr.* 2 (1936) 454.

Dicranotaenia dahomeensis *Finet* in *Mém. Soc. Bot. France* 9 (1907) 47, t. IX, figs. 28–38.

Gussonea dahomeensis *Schlechter* in *Beih. Bot. Centralbl.* 36, Abt. 2 (1918) 92.

GOLD COAST: Assuantsi, Aug. 1909, *Miles*; Akim, Bunsu Plantation, *Gillett*.

DAHOMEY: Adja Ouéré, *Le Testu 125* (TYPE not seen).

FRENCH CAMEROONS: No locality, *Bates 1213*.

BELGIAN CONGO: Eala, 1925, *Robyns 531*.

UGANDA: Mabira Forest, April 1908, *Brown 433*.

Evidently widely distributed throughout the forest region of equatorial Africa. This species may be recognised by the divided stipes of the pollinia and the sharply incurved spur which is swollen to form an ellipsoid sac at the apex. The lobes of the rostellum are curved slightly downwards at the very apex.

22. *Microcoelia Friesii* (*Schlechter*) *Summerhayes* in *Orch. Rev.* 47 (1939) 21, *in obs.*

Gussonea Friesii *Schlechter* in *Fries Wissen. Ergebn. Schwed. Rhodes.-Kongo-Exped. 1911–12*, 1 (1916) 250, fig. 26, et in *Fedde Repert. Spec. Nov. Beih.* 68 (1932) t. 97, no. 386.

NORTHERN RHODESIA: Kalambo, between Abercorn and Bismarburg, Nov. 1911, *Fries 1342*.

Unaccountably omitted from *Schlechter's* revision of the genus. The species may be distinguished by its broad

sub-flabellate lip and anther with not such a long point as in the other species.

23. *Microcoelia Koehleri* (Schlechter) Summerhayes
comb. nov.

Angraecum Koehleri Schlechter in Engler Bot. Jahrb. 38 (1906) 162.

Gussonea Koehleri Schlechter in Beih. Bot. Centralbl. 36, Abt. 2 (1918) 93, et in Fedde Repert. Spec. Nov. Beih. 68 (1932) t. 97, no. 387.

TANGANYIKA TERRITORY: Usambara, Feb. 1899, Köhler (not seen).

This species seems to be closely allied to *M. pachystemma* Summerh., but the rostellum lobes are linear-subulate, the viscidium broadened and obtuse in front, and in other respects the description differs from that of *M. pachystemma*.

24. *Microcoelia megalorrhiza* (Reichenbach filius)
Summerhayes comb. nov.

Angraecum megalorrhizum Reichenbach filius Otia Bot. Hamburg. (1881) 117 — Rolfe in Dyer Fl. Trop. Afr. 7 (1897) 150.

Gussonea megalorrhiza Schlechter in Beih. Bot. Centralbl. 36, Abt. 2 (1918) 93.

NYASALAND: Shire River valley, Dec. 1865, Waller (TYPE); Shibisa, R. Shire, March 1859, Kirk; no locality, Buchanan 1262.

Easily distinguished by the verrucose roots. The lip lamina is narrower than in *M. pachystemma* Summerh., the rostellum lobes are more acute and the viscidium is shorter and broader.

25. *Microcoelia pachystemma* Summerhayes in
Orch. Rev. 47 (1939) 21, fig. p. 23.

UGANDA: Bulimezi, Kangape Forest, Maitland 121 AB.

KENYA COLONY: Near Lake Victoria, March 1938, Firth (TYPE); Kisumu, Aug. 1938, Gray 53.

Characterised by the slightly S-shaped spur, tapering from base to apex, the very fleshy and obtuse rostellumlobes and the linear viscidium.

OTHER LEAFLESS ANGRAECIDS

Solenangis aphylla (*Thouars*) *Summerhayes* comb. nov.

Angraecum aphyllum Thouars Fl. Iles Austr.-Afr. (1822) t. 73—Hooker Lond. Journ. Bot. 3 (1844) 482—Reichenbach filius in Walpers Ann. 6 (1864) 1907—S. Moore in Baker Fl. Maurit. Seych. (1877) 358—Reichenbach filius Otia Bot. Hamburg. (1881) 77—Rolfe in Dyer Fl. Trop. Afr. 7 (1897) 150.

Gussonea aphylla A. Richard in Mém. Soc. Hist. Nat. Paris 4 (1828) 68 [Orch. Iles France et Bourb. 76, t. 11, fig. 1]—Ridley in Journ. Linn. Soc. Lond. Bot. 21 (1885) 492—Schlechter in Beih. Bot. Centralbl. 33, Abt. 2 (1915) 424, et l.c. 36, Abt. 2 (1918) 90, et in Fedde Repert. Spec. Nov. Beih. 33 (1925) 374—Perrier de la Bathie in Humbert Not. Syst. 7 (1938) 31.

Saccolabium aphyllum Lindley Gen. & Sp. Orch. Pl. (1833) 223.

Mystacidium aphyllum Durand & Schinz Consp. Fl. Afr. 5 (1892) 51—Cordemoy Fl. Ile Réunion (1895) 219.

Angraecum Wakefieldii Rolfe in Dyer Fl. Trop. Afr. 7 (1897) 146, *partim*.

Rhaphidorrhynchus aphyllus Finet in Mém. Soc. Bot. France 9 (1907) 35, t. VII, figs. 1–2.

Angraecum defoliatum Schlechter in Ann. Mus. Col. Marseille, sér. iii, 1 (1913) 191, t. XX, fig. A 1–7.

Gussonea defoliata Schlechter in Beih. Bot. Centralbl. 33, Abt. 2 (1915) 425, et l.c. 36, Abt. 2 (1918) 90, et in Fedde Repert. Spec. Nov. Beih. 33 (1925) 375, et l.c. Beih. 68 (1932) t. 96, no. 384.

Microcoelia aphylla Summerhayes in Bull. Misc. Inform. Kew (1936) 233, *in obs.*

KENYA COLONY: Mombasa, *Kirk*; Mombasa, Nov. 1884, *Wakefield* (*in part*); Arabuko, *Graham 1637*; Giriyama & Tsimba Mts., 1887, *Taylor*.

TANGANYIKA TERRITORY: Msassau, in fruit March 1939, *Vaughan 2765*; same locality, Sept. 1939, *Vaughan 2874*.

MOZAMBIQUE: Mandera, *Sacleux 989; 1244*; Quilimane, *Le Testu 460; 823* (all not seen).

MAURITIUS: No locality, *Thouars; Bouton; Boivin* (not seen); around Flacq and on Montagne Longue, *Bojer* (not seen).

REUNION: R. Saint-Denis, *Cordemoy* (not seen).

MADAGASCAR: Nosi-Komba I., Dec. 1879, *Hildebrandt 3256*; N.W. coast, *Baron 6375*; Mahanoro, *Perrier de la Bathie 14198*; Manongarivo, *Perrier 1938* (22); Fort Dauphin, *Decorse*; Nossi-Bé, *Pervillé; Boivin 2015*; no locality, *Richard* (last five not seen).

As already mentioned in my introductory remarks, I do not see how this species can be separated from *Solenangis* so far as the floral structure is concerned. In habit it has long climbing stems and short inflorescences which closely resemble those of *Solenangis clavata* (Rolfe) Schltr. The lip lamina is more strongly developed but the column and pollinia are much the same as in the leafy species of the genus. In *S. aphylla* the leaf bases are much better developed than in the other leafless species included above in *Microcoelia*.

***Solenangis cornuta* (Ridley) Summerhayes comb. nov.**

Gussonea cornuta Ridley in Journ. Bot. Lond. 23 (1885) 310—Schlechter in Beih. Bot. Centralbl. 36, Abt. 2 (1918) 91—Perrier de la Bathie in Humbert Not. Syst. 7 (1938) 30.

Angraecum cornutum Reichenbach filius in Flora 68 (1885) 538.

Angraecum cyclochilum Schlechter in Engler Bot. Jahrb. 38 (1906) 160.

Rhaphidorrhynchus cornutus Finet in Mém. Soc. Bot. France 9 (1907) 34, t. VI, figs. 38–42.

Gussonea cyclochila Schlechter in Beih. Bot. Centralbl. 33, Abt. 2 (1915) 425, et l.c. 36, Abt. 2 (1918) 92, et in Fedde Repert. Spec. Nov. Beih. 33 (1925) 374, et l.c. Beih. 68 (1932) t. 96, no. 383.

COMORO ISLANDS: Grand Comoro, Combani Forest, Sept. 1884, *Humboldt* 238 (TYPE).

MADAGASCAR: Rigny Bay, *Boivin* 2278; Sainte-Marie, *Boivin* 2349; Morafenobe, *Decary* 2346; Namoroka, Ambongo, Dec. 1926, *Perrier* 17829; Marofondalia, near Morondava, Nov., *Perrier* 1841; near Antananarivo, *Bang* (all not seen).

There seems little doubt that Perrier de la Bathie is correct in considering *Gussonea cornuta* Ridl. and *Angraecum cyclochilum* Schltr. to be conspecific. *S. cornuta* differs from *S. aphylla* (Thouars) Summerh. in the fewer-flowered inflorescences, the more or less orbicular lip lamina retuse at the apex, the spur tapering towards the apex, the more acute rostellum lobes and the longer stipes to the pollinia. In general features it conforms well with the genus *Solenangis* except that the lip lamina is better developed. The four species *S. clavata* (Rolfe) Schltr., *S. scandens* (Schltr.) Schltr., *S. aphylla* (Thouars) Summerh. and *S. cornuta* (Ridl.) Summerh. form a series in which the lip lamina is progressively well developed in comparison with the uniformly large spur.

Encheiridion *Summerhayes* gen. nov.

Epiphytica, aphylla. *Caulis* brevissimus, radices numerosas simplices flexuosas emittens, apice cataphyllis imbricantibus subcartilagineis obtectus. *Inflorescentiae* ex axillis cataphyllorum ortae, simpliciter racemosae, multiflorae; pedunculus brevis; bracteae brevissimae, vaginantes. *Flores* alternati, parvuli, breviter pedicellati. *Sepala* et *petala* vix patentia, lateralia obliqua, petalis quam sepalis paulo latioribus. *Labellum* trilobatum; lobi

laterales parvi, erecti, acuti; lobus intermedius multo major, ex ungue brevi transverse elliptico-oblongus, apice late retusus apiculo interjecto, marginibus breviter laceratis; calcar basi dependens, triente apicali valde incurvatum, apice valde inflatum. *Columna* brevis, apice truncata sed dorso in apiculum producta, androclinio fere horizontali; anthera hemisphaerica, antice in rostrum triangulare breve producta; pollinia globosa, stipite uno perlongo angustissimo apice valde dilatato, viscidio lineari-ligulato stipite multo brevioribus; rostellum horizontale, ornithorrhynchum, columna duplo vel triplo longius, marginibus recurvatis, viscidio amoto apice per 1.5 mm. longo bipartitum.

Species unica:—*E. macrorrhynchium* (Schltr.) Summerh.

Encheiridion macrorrhynchium (*Schlechter*) *Summerhayes comb. nov.*

Angraecum macrorrhynchium Schlechter in Engler Bot. Jahrb. 38 (1905) 22.

Gussonea macrorrhynchia Schlechter in Beih. Bot. Centralbl. 36, Abt. 2 (1918) 93, et in Fedde Repert. Spec. Nov. Beih. 68 (1932) t. 97, no. 388.

Microcoelia macrorrhynchia Summerhayes in Hutchinson & Dalziel Fl. West. Trop. Afr. 2 (1936) 454.

GOLD COAST: Pamu Berekum, Sept. 1932, *Vigne 2490*.

FRENCH CAMEROONS: Dja R., Oct. 1899, *Schlechter 12785* (not seen) (TYPE); Ja River, Bitye, near the Ndu River, Sept. 1918, *Bates 1429*.

GABON: Upper Ogoué River, Tomisimba, May 1931, *Le Testu 8801*.

The above remarkable plant must, in my opinion, be removed from *Microcoelia* and form a new genus. The characteristic features are the curiously shaped trilobed lip and the column structure, particularly the long horizontal rostellum which is two to three times as long as the column. There is some doubt as to the exact interpretation of the lip structure. Schlechter treats the two

upright triangular structures, one on each side of the spur opening, as two parts of a bifid callus and as the base of the front lobe is decurrent around the outside of these, there is some justification for this view. The "side lobes," however, are quite separate from one another and in his view should be treated as two calli, comparable to those in such diverse genera as *Eulophia* and *Diplacorchis*. I have described recently (in Bot. Mus. Leaflet Harv. Univ. 10 (1942) 286) a *Polystachya* in which the true lateral lobes are decurrent in front on to the middle lobe so that the structures in *Encheiridion macrorrhynchium* may be homologous with those in this *Polystachya*. In support of this we have the fact that paired calli are extremely uncommon in the Angraecoid orchids, although they are recorded for *Microcoelia dolichorrhiza* (Schltr.) Summerh. In that case they are transversely placed and there is no other resemblance between that species and the species under discussion.

In column structure the species is far removed from any *Microcoelia*. The androclinium is almost horizontal and in that respect agrees with that in sect. *Eu-microcoelia* of that genus, but the long rostellum is very distinct. This bears at its apex a narrow viscidium about 1.5 mm. long which is apparently more or less continuous with the stipes and not markedly articulated with it as in most Angraecoids. The anther is only shortly produced in front and does not cover the whole of the stipes as in most *Microcoelias*.

Chauliodon *Summerhayes gen. nov.*

Epiphytica, aphylla. *Caulis* brevis vel brevissimus, radices numerosas simplices vel pauciramosas flexuosas emittens, apice cataphyllis acuminatis praeditus. *Inflorescentiae* ex axillis cataphyllorum ortae, simpliciter racemosae, laxiuscule multiflorae; bracteae parvae, vaginantes.

Flores alternati, mediocres, longiuscule pedicellati. *Sepala* obovato-oblonga, lateralia valde obliqua. *Petala* quam sepala breviora et angustiora. *Labellum* ad calcar fere omnino redactum; lamina minuta, dentiformis, leviter recurvata, ante calcar callo erecto dentiformi acuto instructa; calcar basi valde inflatum, medio anguste cylindricum, dimidio vel triente apicali subito inflexum leviter inflatum. *Columna* inferne inclinata, superne recurvata, apice dilatata; androclinium dorso adscendens; anthera cucullata, antice longe et acute rostrata; pollinia ellipsoidea, infra apicem stipitis affixa, stipite inferne gracili superne valde dilatato pollinia fere amplectente, viscidio parvo triangulari secus medium convexo dorso truncato; rostellum \pm deflexum, modice productum, acutum vel obtusum, viscidio amoto breviter bifidum.

Species unica:—*C. Buntingii* Summerh.

Chauliodon Buntingii *Summerhayes sp. nov.*

Planta epiphytica, aphylla; caulis usque ad 2.5 cm. longus, circiter 0.3 mm. diametro, radices simplices vel pauciramosas flexuosas sulcatas laeves 1–1.5 mm. diametro emittens, cataphyllis lanceolatis acutis vel acuminatis subcartilagineis instructus. *Inflorescentiae* graciles, usque ad 25 cm. longae, basi vaginis arctis circumdatae, inferne vaginis arctis distantibus instructae, superne laxae vel laxiuscule multiflorae; rhachis teres, laevis; bractee vaginantes, acutae, usque ad 3 mm. longae. *Flores* erecto-patentes, brunneo-rosei; pedicellus (ovario incluso) 2–3 mm. supra internodium exortus, fere filiformis, 10–13 mm. longus. *Sepalum* intermedium obovato-oblongum, apiculatum, concavum, 3.5–4.5 mm. longum, 1.75–2.25 mm. latum, trinervium; sepala lateralia dimidio inferiore recta, oblonga, dimidio superiore valde obliqua, ovata, apiculata, latere antico dilatata, circiter 5 mm. longa et 2.5 mm. lata, trinervia. *Petala* oblique lanceolata, acu-

minata, 3–4 mm. longa, circiter 1 mm. lata, uninervia. *Labellum* fere ad calcar redactum; lamina minuta, recurvata, dentiformis, circiter 0.5 mm. longa, ante calcar callo erecto dentiformi acuto antice anguste alato postice sectione V-formi circiter 2 mm. alto instructa; calcar pro rata magnum, triente basali valde inflatum ore 3.3 mm. latum, triente intermedia anguste cylindricum, tum subito incurvatum angustatum, triente apicali leviter adscendente modice inflatum, apice ipso leviter recurvatum, subobtusum, in toto 12–14 mm. longum. *Columna* inferne inclinata, superne recurvata, circiter 3 mm. alta; androclinium dorso adscendens, excavatum; anthera cucullata, antice sensim angustata, longiuscule rostrata, apice ipso breviter recurvata, 3.3 mm. longa; pollinia ellipsoidea, 0.8–1 mm. longa, 0.6–0.8 mm. infra apicem stipitis inserta, stipite dimidio inferiore angusto superne valde dilatato pollinia fere amplexante circiter 3 mm. longo, viscidio minuto triangulari antice subacuto postice truncato secus medium convexo, 0.2 mm. longo; rostellum decurvatum, modice productum, acutum vel obtusum, apice ipso leviter adscendens, viscidio amoto breviter bifidum.

LIBERIA: Mt. Barclay, June 1912, *Bunting 9* (TYPE in Herb. Mus. Brit.).

SOUTHERN NIGERIA: Eket District, 1912–13, *Talbot 3287*.

This very remarkable plant was unfortunately overlooked when the Flora of West Tropical Africa was prepared. The general organisation indicates a relationship to *Microcoelia* Lindl., especially the leafless habit, very short stems, adnation of the base of the pedicel to the rhachis, column structure and common stipes to the pollinium. The distinctive features are the lip lamina reduced to a tooth-like point and the tall erect acute callus placed just in front of the spur mouth; the generic name is given in allusion to this. This callus is keeled on the outside and hollow towards the column the two sides

diverging and making the callus V-shaped in transverse section. The stipes of the pollinarium is broadened in the upper half to form a flattened plate which is wrapped around the greater part of the pollinia; these arise some distance below the apex on a slightly less sloping or horizontal portion of the widened area. These features are developed to a much less extent in some of the species of the section *Dicranotaenia* of *Microcoelia*.

Taeniorrhiza *Summerhayes gen. nov.*

Epiphytica, aphylla. *Caulis* brevissimus, radices paucas compressas (vel late bialatas) taeniolis similes emittens, apice cataphyllis longe caudato-acuminatis praeditus. *Infloréscentiae* ex axillis cataphyllorum ortae, uniflorae; pedunculus brevis, apice bracteis duabus instructus. *Flores* pro rata magni, modice pedicellati. *Sepala* ovato-lanceolata, lateralia majora et obliqua. *Petala* curvatim lanceolato-ligulata, ut sepala \pm patentia. *Labellum* e basi angusta subito dilatatum, orbiculari-ovatum, apice retusum, ecallosum sed nervis valde incrassatis; calcar leviter recurvatum vel fere rectum ex ore latiusculo usque ad apicem sensim attenuatum, postice cum lateribus columnae pedi adnatum. *Columna* inclinata, apice truncata, pede brevi instructa, superne semiteres, marginibus inferne alatis in calcar decurrentibus; androclinium anguste excavatum, dorso adscendens; anthera non visa; pollinia oblique ellipsoidea, infra stipitis apicem affixa, stipite uno inferne tereti superne valde dilatato \pm oblique cupulari pollinia fere amplectente, viscidio carnosio ovato; rostellum porrectum, triangulare, acutum, viscidio amoto fere omnino bifidum; fovea stigmatica fere orbicularis.

Species unica:—*T. gabonensis* Summerh.

Taeniorrhiza gabonensis *Summerhayes sp. nov.*

Planta epiphytica, humilis, aphylla; caulis brevissimus, usque ad 2 cm. longus, 3–5 mm. diametro, radices paucas

flexuosas simplices vel pauciramosas carnosas compressas vel late bialatas taeniolis similes virides usque ad 40 cm. longas 6–9 mm. latas emittens, apice cataphyllis e basi lanceolata longe caudato-acuminatis recurvatis subcartilagineis 5–8 mm. longis praeditus. *Inflorescentiae* breves, uniflorae; pedunculus teres, crassiusculus, circiter 1 cm. longus, basi vaginis acutis arete imbricantibus, apice bracteis duabus inferiore sterili longe acuminatis instructus. *Flores* brunnei; pedicellus cum ovario circiter 2.25 cm. longus, bracteam multo superans. *Sepalum* intermedium lanceolato-ovatum, apice breviter acuminatum et cucullatum, 13 mm. longum, 8–8.5 mm. latum; sepala lateralia quam intermedium fere duplo majora, oblique lanceolato-ovata, breviter acuminato-apiculata, margine antica inferne valde dilatata, circiter 17 mm. longa et 9.5 mm. lata; omnia sepala trinervia, nervis exterioribus ramosis. *Petala* oblique vel fere sinuatim lanceolato-ligulata, acuta, circiter 14 mm. longa, 3.5–4 mm. lata, trinervia. *Labellum* e basi angustata fere unguiculata subito dilatatum, suborbiculari-ovatum, apice retusum apiculo interjecto, marginibus sinuato-subrenatis, circiter 18 mm. longum et 19.25 mm. latum, ecallosum sed nervis ramosis incrassatis; calcar leviter recurvatum vel fere rectum, ex ore circiter 4.5 mm. diametro sensim angustatum, apice subacutum, postice basi columnae pedi adnatum. *Columna* inclinata, apice truncata, 6 mm. alta, sectione semi-tereti, marginibus inferne alatis in pedem 4.5 mm. longum productis calcari adnatis; androclinium dorso ascendens; anthera non visa; pollinia oblique ellipsoidea, 1.5 mm. longa, 1.2 mm. infra stipitis apicem affixa; stipes trientibus duobus inferioribus teres, triente apicali valde dilatatus, fere cupularis postice cupulae margine humiliore, pollinia fere amplectens, in toto 4.7 mm. longus, superne 2.75 mm. latus; viscidium ovatum, carnosum, 1.8 mm. longum, 1.4 mm. latum. subtus excavatum; rostel-

lum porrectum, triangulare, acutum, 2 mm. longum, viscidio amoto fere omnino bifidum; fovea stigmatica fere orbicularis.

GABON: Upper Ngounyé River, Mourindou, Oct. 1926, *Le Testu* 6357 (TYPE in Herb. Le Testu).

This remarkable plant stands alone among African orchids in its flattened green roots, similar to those in *Phalaenopsis*, *Kingiella* and other Asiatic genera. Other distinctive features are the single-flowered inflorescences, the striking lip and the column structure. The lip, with its numerous thickened branching veins is more reminiscent of certain species of *Eulophia* than of an Angraecoid and this resemblance is carried further in the marked column foot. The sides of the column are carried down in the form of wings onto the foot where they are joined to the margins of the spur opening. The lateral sepals also arise on the foot. The pollinarium shows certain features in common with that of *Chauliodon*, described above, but here the flattened apical part of the stipes forms a shallow cup, with a low break in the rim on the posticous side, but almost completely enveloping the pollinia which are attached toward the base of the cup. The viscidium is massive and fleshy and fits under the triangular rostellum.

Ankylocheilos *Summerhayes gen. nov.*

Epiphytica, aphylla. *Caulis* brevissimus, radices flexuosas simplices emittens. *Inflorescentiae* erectae, superne pauciflorae; bracteae minutae. *Flores* minuti, patentés, breviter pedicellati. *Sepala* et *petala* usque ad supra medium connata, inter se similia, parte libera lanceolata ovata, subacuta. *Labellum* liberum, ambitu lanceolatum, superne profunde cucullatum, apice ipso inflexum acutissimum, basi utrinque dilatatum, obscure trilobatum; calcar fere globosum, ore antice callo carnosio fere oclusum. *Columna* brevissima, truncata, antice utrinque lobo ellip-

tico porrecto instructa; androclinium excavatum; anthera \pm quadriloba, lobis hemisphaericis duobus posticis quam anticis plus duplo majoribus; pollinia oblique pyriformia, stipite brevissimo, viscidio fere semiorbiculari.

Species unica:—*A. Coxii* Summerh.

Ankylocheilos Coxii *Summerhayes sp. nov.*

Planta epiphytica, minuta, aphylla. *Caulis* brevissimus, usque ad 0.5 cm. longus, radices flexuosas teretes laeves usque ad 4 cm. longas, 1 mm. diametro emittens. *Infloréscentiae* erectae, usque ad 1.5 cm. altae, dimidio superiore subdense 3–6-florae; pedunculus gracilis, teres; bracteae ovatae, obtusae, circiter 0.5 mm. longae. *Flores* patentes, aurantiaci, breviter pedicellati. *Sepala* et *petala* subsimilia, sed lateralia leviter obliqua, e basi usque ad supra medium inter se connata, in toto circiter 1.5 mm. longa et 0.5 mm. lata; sepali pars libera lanceolata, obtusa, apice leviter recurvata; petali pars libera triangulari-ovata, subacuta; omnia tepala uninervia. *Labellum* liberum e basi dilatata et obscure trilobata ambitu lanceolatum, acutum, superne propter margines ad medium inflexas connatas longe (vel profunde) cucullatum, apice inflexo acutissimo; calcar fere globosum, 0.6 mm. diametro et longum, ore antice callo carnosio semilunato fere oclusum. *Columna* brevissima, 0.4 mm. alta, truncata, antice utrinque lobo elliptico (?stelidio) porrecto 0.4 mm. longo instructa; androclinium excavatum, reclinatum; anthera opercularis, \pm quadriloba, lobis hemisphaericis duobis anticis minoribus leviter cucullatis; pollinia 0.25 mm. longa, stipite brevissimo crasso columnari, viscidio fere semiorbiculari antice rotundato postice latissime cuneato 0.2 mm. lato; rostellum breviter productum, obtusum.

GOLD COAST: Aburi, April 1938, *Cox 92*.

Described from five specimens in liquid preservative.

The specific epithet is given in honor of the collector, Mr. J. K. Cox, of the Gold Coast Department of Agriculture, who has paid special attention to the orchids of that colony and has made several other interesting discoveries. The whole plant is only a few centimetres long and high and could easily be overlooked.

This remarkable species, although possessing the habit of the smaller species of *Microcoelia* has several very distinctive features, among which are the union of the tepals, the extraordinary lip and the structure of the column. No Angraecoid orchid has previously been recorded in which the tepals are united to form a tube as in the plant here considered. The lip is reminiscent of that of *Liparis tridens* Kraenzl., but in *A. Coxii* the inflexed margins are actually connate so as to form a deep narrow hood rather like the finger of a glove; the apex is incurved to form a sharp slender hook, hence the generic name. At the mouth of the spur there is a platform-like semilunate callus which projects inwards so as to leave only a very small opening against the column front. The very short column bears at its front corners two flap-like lobes projecting forwards in a vertical plane. Between these is the obtuse rostellum bearing the relatively large viscidium from the centre of which arises the short massive stipes. The anther has two erect rounded posticous lobes, each one containing the greater part of a pollinium, while in front there are two similar but smaller lobes between which is a slit through which the pollinia are attached to the stipes. The whole structure is so minute that it was only with difficulty that the details could be elucidated.